

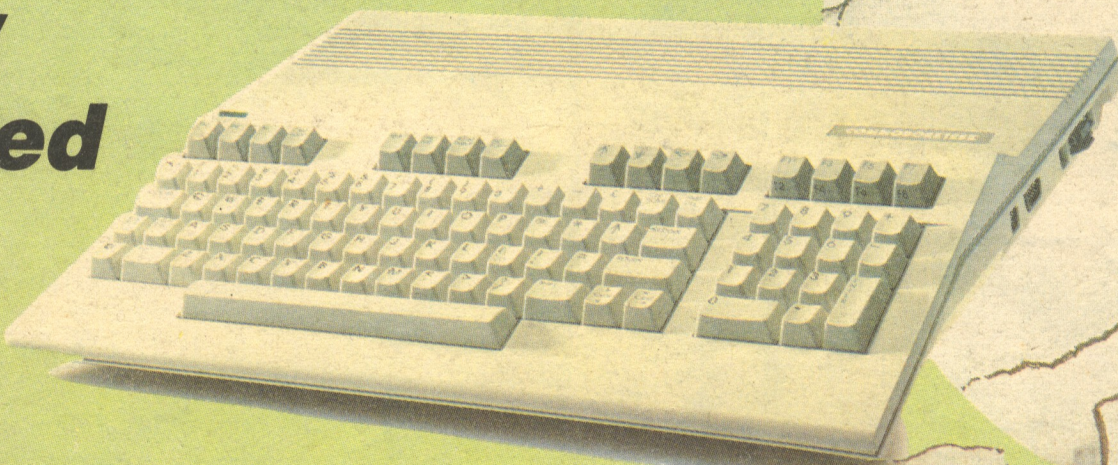
COMPUTER SHOPPERTM

\$1.95
© 02927

NEW & USED BARGAINS

COMMODORE 128

**Newly
Hatched**



Inside

- Atari — New 8-Bit And 16-Bit Computers
- EVE II — Transportable Apple II Compatible
- MSX Computers —
Are Here Now!
- Base Software Today
- Lancaster's Help Column
- Buy And Sell Computers
- Low Cost, Hard Disk Tape-Backups for PCs

08550CAGRA00
RAY CRAGLE
37WALLACE RD
PRINCETON NJ 08550

NJ 08550

1285 12



<p>EXTERNAL FLOPPY FOR YOUR ONLY \$229.50!!</p> <p>apple IIC PORTABLE H&M</p> <p><small>* Registered Trademark of Apple Computer Corporation</small> <small>Disk Drive Services, Inc. See Ad Index</small></p>	
<p>COMMUNICATIONS ELECTRONICS INC. 84¢ Diskettes</p> <p>800-USA-DISK <small>See ad index</small></p>	
<p>THE WORLD'S LARGEST COMPUTER MAIL ORDER FIRM</p> <p>CONROY-LA POINTE</p> <p><small>See Ad Index</small> <small>Formerly Computer Exchange</small></p>	
<p>CALL WW</p>	<p>NEED A PRINTER?</p> <p>MidWest Micro-Peripherals</p> <p>1-800-423-8215</p> <p><small>INSIDE FRONT COVER</small></p>
<p>SANYO SPECIALS THE COMPUTER WAREHOUSE</p> <p><small>See Page 8 & 9</small></p>	
<p>19 MB DISK \$399!</p> <p><small>UNFORMATTED CMI 5619 HARD DRIVE, BARE DRIVE, 1 YR. WARRANTY</small></p> <p><small>ORDER NOW PROTO PC INC. (612) 644-4660 SEE AD INDEX</small></p>	
<p>COMPUTER MAIL ORDER</p> <p><small>THE BEST PRICES JUST GOT BETTER SEE AD INDEX</small></p>	

See Advertisers Index, Page 205

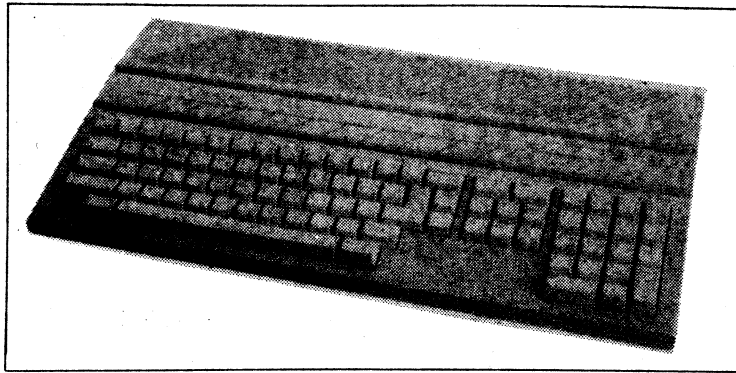
ATARI

This Is The Computer That Jack Built! The New Atari Corp. Introduces New Line at CES

By Computer Shopper Staff

When the Consumer Electronics Show in Las Vegas opened its doors on January 5th, all eyes were on the large Atari exhibit, roped off and guarded by uniformed people with large guns on their hips! In addition, all the machines were covered with drapes to shield them from curious eyes! We all wondered what could be going on here. After trying to enter by flashing a press badge and being repelled, we found out that the Governor of the State of Nevada and Jack Tremiel himself would formally open the booth at 9:45 a.m. Until then, everything was under wraps.

Soon a crowd gathered, lured by the sight of television, radio and local newspaper people setting up their equipment. By 10 a.m., the great ones arrived for the ceremony. There was the Governor of the state ready to proceed with the unveiling of the computers and Jack Tramiel, the creator, smiling on all who attended. The only thing lacking was a bishop to bless the event as they do for fishing fleets and packs of hunting hounds. You have to hand it to Jack. He upstaged all the other exhibitors at the show on the opening day. We could not help contrasting the vibrations of success in the Atari booth with the deep gloom prevailing in the next one. Here were the sad people representing Coleco and the Adam. Their booth was full of the wonderful things you could do with the Adam and all the new software and peripherals



**ATARI 520ST
PERSONAL COMPUTER**

recently introduced for this "reborn" computer. The trouble was that while setting up, Coleco announced the death of the Adam and the sales of the inventory to one unnamed discounter. The poor Adam people were trying to smile with the tradition of "the show must go on."

The New Atari Computers

The hoopla in the Atari booth was based upon solid achievements. The new lines of Atari machines represent real progress when compared with the low expectations everyone had for that company prior to Jack Tramiel's take-over.

The Atari 65XE/130XE 8-Bit Computers

These are the direct descendents of the 800XL series

and retain compatibility including much of the excellent graphics and sound ability of the original. The 65XE is a 6502C machine operating at 1.79MHz clock speed. It uses custom graphic and sound chips and has an integrated self-test program. It boasts 64K of user RAM. The graphics include a 320 by 192 pixel color screen with 11 graphics' modes. There are 256 colors available and five text modes. The screen can scroll both horizontally and vertically, and there are special Player/Missile Graphics with collision detection.

The keyboard is a full stroke unit with graphics' functions on the front of the keys. Controller ports are provided on the rear panel for accessories and a serial I/O connector is provided for connection to printers, or to data storage



ATARI 65XE PERSONAL COMPUTER

units. There is a built-in cartridge slot and either the 1010 program cassette recorder or the 1050 disk drive can be used with the computer. Atari BASIC is built into the computer; Logo, Pilot and Assembler/Editor is also provided. The 65XE is compatible with all Atari XL software.

There are several additional versions of the 65XE including the 65XEM which adds music synthesis with eight voices covering the fundamental frequencies of 4.8Hz to 7.8KHz (10 2/3 octave range). The music sounds very rich due to a digital sample rate in excess

of 30kHz. There are 64 harmonics and the number of harmonics per voice is any multiple of two. This model is just the thing for music buffs, although all of the 65XE series have four independent voices ranging from .06Hz to 800kHz.

The 65XEP is a transportable version with a 5" monochrome CRT built in and a disk drive. This is intended for the business person on the go. However, we still do not like a 5" CRT and the idea of an Atari with a monochrome

Continued on page 56

Seduction. . .
more than a game!



ATARI 400/800/1200 - 48K 1 DRIVE - REQUIRED
TRS-80 MODEL I - 48K 2 DRIVE - TRSDOS 2.3
TRS-80 MODEL III - 48K 1 DRIVE - TRSDOS 1.3
TRS-80 MODEL 4P - 48K 1 DRIVE - TRSDOS 1.3
SEDUCTION/1 AND SEDUCTION/2 * - \$49.95
SEDUCTION/2 MODEL III/4 AND 4P - \$39.95
SEDUCTION/2 ATARI 400/800/1200 - \$34.95
SEDUCTION/1 MODEL I/III/4 AND 4P - \$29.95
MODELS III/4 AND 4P*

XX-RATED versions - Order #X6501

ADULT VIDEO GAMES™
7325 1/2 Reseda Blvd.
Suite 637, Dept. 8
Reseda, Ca. 91335

X-RATED

ATARI HARDWARE / SOFTWARE

810 Disk Drives	\$265	(7)
810 Disk Drive Kits	\$240	(7)
810 Happy Enhancement	\$185	(4)
1050 Happy Enhancement	\$185	(4)
810 Analog Upgrade Kit	\$ 37	(3)
850 Interface Module	\$125	(7)
Atari 800 Computer Kits		
48K Electronics	\$100	(7)
Atari 400 Computer Kit	\$ 47	(5)
800 OS 10K ROM 'B' Board	\$ 17	(2)
CPU 'GTIA' Board	\$ 18	(2)
16K Memory Board	\$ 19	(2)
400/800/810/850 Power Adapter	\$ 15	(3)
I/O Data Cable, 6'	\$ 12	(2)
13 pin I/O Plug Kit (cable end)	\$ 3	(1)
13 pin I/O Jack (Port)	\$ 3	(1)
Atari Joystick (standard)	\$ 5	(2)
Atari Paddles (set)	\$ 8	(2)
All types of other boards and parts are available! Call now!!		

Atari Microsoft Basic II		
Cartridge w/manual	\$ 27	(3)
Atari Pilot, Cart. w/manual	\$ 22	(3)
Atari Basic Cartridge Kit	\$ 15	(3)
Atari Assembler/Editor Cart. Kit	\$ 15	(3)

TEXAS INSTRUMENTS TI99/4 HARDWARE

TI99 Replacement Keyboard	\$ 7	(3)
TI99 Power Supply Board	\$ 7	(2)
TI99 Power Adapter	\$12	(3)
TI99 Video Modulator Unit	\$12	(3)

TI99 Integrated Circuit Chips		
TMS 9900 — \$13 (1)	TMS 9901 — \$ 5 (1)	
TMS 9904 — \$ 5 (1)	TMS 9918 — \$ 9 (1)	
Complete set of all four: \$27 (3)		

TIMEX/SINCLAIR TS-1000 CASSETTES

Statistics, Algebra 1, Geometry 1, Money
Analyzer 1, Mixed Game Bag 2, Pwr. Pack 1 —
\$ 3 (1) each

Stock Analyzer, College Cost Analyzer, IRA
Planner, Home Improvement Planner,
Checkbook Manager, Coupon Manager, The
Organizer — \$ 4 (1) each

MORE TITLES AVAILABLE/CALL NOW!

SPECIAL CLOSE-OUT: PRINTER, TIMEX
TS-1000 16-Column Printer, uses plain
paper... NO INTERFACE REQUIRED. MADE
IN U.S.A. — \$25 (4) Limited Quantities

CALL OR WRITE FOR FREE CATALOG!!!

Ordering Information: All boards listed are complete with all parts and are fully guaranteed. UPS shipping charges are shown in brackets next to the price. Shipping charges must be included with all orders. Orders may be placed by phone using your VISA or MasterCard, or you may mail your order in with a check or money order. Hurry, some supplies are limited.

CENTURIAN ENTERPRISES (805) 544-6616
Post Office Box 3233, San Luis Obispo, CA 93403-3233
Sales Office: 890 Monterey Street, Suite B, SLO, CA 93401

ATARI

INDUS GT ss/dd drive \$289
*free software and 10 disks

ATARI 1050 drive \$179
HAPPY 1050 ss/dd drive \$359
HAPPY 1050/810 enhancement \$179
MPP 1000C MODEM \$119
*free download software

OMNIVIEW XL 80-column scrn \$59
MJ10 Color Monitor \$219
*separated video, free cable

850 INTERFACE \$119
ATARI Numeric Keypad \$29
ATARI Touch Tablet \$49
PRINTERS & INTERFACES CALL
SYNFILE/SYNALC \$39
CALL OR WRITE FOR PRICE LIST
ADD 2% SHIPPING — MIN \$3.00
ADD 4% FOR VISA/MC
PRICES & AVAILABILITY MAY CHANGE

DYSCOM COMPUTERS
162 Pyleys, Chillicothe, OH 45601
614-772-6956
9-9 EST TECHNICAL 6-9 EST

Computer Jack Built Continued from page 53

screen does not seem to make much sense.

The star of the 65XE line, we feel, will be the Atari 130XE with 131,072 bytes of RAM memory. With this extra memory available for animation and extended graphics, users will be able to do really interesting things with the 8-bit line.

And Now For Something New From Atari

The 65XE 8-bit line are merely new versions of the 800XL computers, but Jack Tremiel promised new things from Atari and here they are—the Atari 130ST and 520ST, two new 16-bit M68000 based computers with all the bells and whistles of the

higher priced 16-biters. The secret is in the software, and Atari has incorporated Digital Research's GEM graphics environment into their TOS operating system. This includes such features as Icons, Drop-down menus, Windows, Vector drawing, GEM virtual device interface and application services. The graphics and screen applications are controlled by a two-button Mouse.

There are three graphics modes: Low resolution (320 x 200 pixels), Medium resolution (640 x 200 pixels), and High Resolution (640 x 400 pixels). In the medium and high resolution modes, there are 512 colors available—eight levels each of red, green and blue.

The music capability of the ST series has three voices, and a range from 30Hz to above

audible range. There are separate frequency and volume controls provided. The MIDI interface controls external music synthesizers.

The ST series has both a Centronics printer port and RS232C Serial for a modem or serial printer. Controllers for both a floppy disk interface and a hard disk are built in. There are two joystick ports and one is configured for the two button mouse.

The floppy disk system uses 3½" disks with capacities of either 250K or 500K capacity. There is also a 3½" hard disk of 10 Mbyte capacity available. In spite of all the disk-based input, cartridge input is still available for the ST computers.

The keyboard is an ergonomic design with a good feel



**ATARI 130ST
PERSONAL COMPUTER**

and an 18-key keypad. There is a cursor control cluster for easy use. The video line-up includes the ability to use a T.V., low-resolution composite video, medium-resolution RGB

monitor and a high-resolution monochrome monitor.

The 130ST comes with 131,072 bytes of RAM and

Continued on page 60

XEROX MANUFACTURING OUTLET

PHONE NUMBER (214) 960-3367

STORE LOCATION: 4204 LINDBERG DRIVE, ADDISON, TEXAS

STORE HOURS: TUESDAY-FRIDAY 9 UNTIL 4

MAILING ADDRESS: 1301 RIDGEVIEW DR. • MS 503 • LEWISVILLE, TEXAS 75067

**THE XEROX MANUFACTURING OUTLET HAS THE FOLLOWING ITEMS
FOR SALE THROUGH PHONE ORDER ONLY.**

MAIL ORDERS WILL BE ACCEPTED IF YOU CALL FIRST TO PLACE THE ORDER. CASHIERS CHECK ONLY!
MINIMUM ORDER IS \$10.00 • ALL SALES ARE FINAL • NO WARRANTIES OR RETURNS
MASTERCARD AND VISA ACCEPTED • SHIPPING & SALES TAX WILL BE INCLUDED ON EACH ORDER.

SPECIALS

- **UNI-DIRECTIONAL TRACTOR FEEDS
FOR DIABLO 630, 1640, 1650
AND 2300 PRINTERS**
PRICE \$60.00

- **END-PRODUCT SALES
FACSIMILE (TC400) 850 D.T.S.**
TESTED GOOD — \$400.00 \$1200.00
UNTESTED — \$200.00 \$ 900.00

- **LOW PROFILE KEYBOARDS FOR 820-II
(LINE REJECTS)**
PRICE \$25.00

- **LINE REJECT 820 POWER SUPPLIES**
— 12V .5A, +12V .2A,
+12V 2.8A, +5V 4.65A
PRICE \$25.00 & \$50.00

**FOLLOWING ARE ADDITIONAL ITEMS AVAILABLE THROUGH THE XEROX
MANUFACTURING OUTLET. SOME ITEMS ARE IN LIMITED QUANTITIES, SO ORDER NOW.**

ITEM	COST				
CABINET-HOLDS MONITOR, 2 8" DRIVES CPU PWA & PWR SUPPLY	\$125.00	16/8-8086 PWA-LESS 2732 CHIP	\$ 30.00	WORD PROCESSING HANDBOOKS	\$ 1.00
		820 POWER CABLES	\$ 1.50	CPM PRIMERS	\$ 1.50
		5¼" DRIVE CABLES	\$ 3.00	8" DRIVE POWER SUPPLY HARNESS	\$ 2.00
		5¼" DRIVE CASES	\$ 9.00	50 HZ 10 MB RIGID DRIVES	\$ 225.00
820 and 820-II PARTS:		8" DRIVE POWER SUPPLIES	\$ 50.00	AC POWER CORDS	\$.50
820 BOARD "NEVER BEEN USED"	\$ 100.00	+ 5V 2.2A1, + 24V 1.7A		BINDERS 3 RING ASSORTED	\$.80-3.00
"USED AS IS"	\$ 50.00	- 5V .14A			

XEROX

Words For Your Atari— S.A.M., The Software Review

by Russell Kavanagh
Meet S.A.M. (Software Automatic Mouth), a voice synthesis system that requires no additional hardware for a disk-based Atari. All voice synthesis is done in software, with output through voice zero. S.A.M. is available from Don't

Ask Computer Software. Using S.A.M. and a few BASIC statements, or from an assembly language program, you can generate very respectable speech through your TV or monitor speaker.

The S.A.M. disk contains several programs. In addition

to the actual speech synthesis program, which requires the use of phonetics, a program is provided that converts English text to speech. This allows you to enter whole words or phrases and hear them pronounced immediately. Also on the disk are several speech

demonstration programs, with preprogrammed texts and a number guessing game.

Upon booting S.A.M., I was able to produce speech in only minutes, using the demonstration programs. A well-written 40 page manual (5.5"x7.5") provides information on the

phonetic spelling system used by S.A.M., how to use S.A.M. from BASIC and with machine language, how to add stress to the speech, the effects of punctuation, and the use of pitch and speech speed controls. Also included is a listing of nearly 1500500 phonetic conversions of S.A.M.

My first listening impression of S.A.M. was that it was very "electronic-sounding", more so than hardware-based synthesizers. I noticed a buzz in some words, and some general background hissing and noise between phonemes. It also sounded like the poor guy (yes ladies, I think S.A.M. is a boy) had a terrible cold. But the speech was surprisingly good, in fact, bordering on exceptional, especially considering the low cost of the software and the general-purpose hardware with which it was working. And, as might be expected, the more I listened, the easier S.A.M. became to understand. I own a voice synthesizer based on the Votrax voice synthesizer chip, so I compared the two. I found that S.A.M.'s claim to sound equal to or better than hardware synthesizers to be reasonable, although the comparison is very subjective. Although I thought the tone of the hardware synthesizer was more pleasing, clarity was equal. In fact, I felt the English-to-text routine in S.A.M. was a little better at pronouncing words than the hardware unit.

So what are the disadvantages of S.A.M.? I see two. First, since S.A.M. is software based, it takes up room. The S.A.M. program itself uses nearly 9K, and the English-to-text routine requires an additional 6K. A second disadvantage, and one I consider the most serious shortcoming, is that S.A.M. blanks the screen while talking. Otherwise, gaps would be inserted into the speech every time direct memory access is performed during screen updating. Although S.A.M. can be forced to leave the screen display on while speaking, the result is badly distorted speech. Surprisingly, the speech is still fairly intelligible.

If you are looking for a low-cost voice synthesizer, then consider S.A.M. The phonetic spelling system is easy to master, since you don't need to

COMPUTER PARTS MART

Osborne

As available only! Very limited quantity.

Important: Always call to check availa- bility before ordering.	To fix yourself, or for parts. Complete, but known not working.	Guaranteed for 30 days. May be new or refurb., depen- ding on avail. Exch/ Repair	Outright
Main Board OS-1	\$49	\$79	\$159
Main Board Exec.	\$159	\$139	\$299
Exec. Memory Card	—	\$39	\$89
Double Density Kit **	—	—	\$79
5" CRT (Grn/White)	\$9.95	\$19	\$29
7" CRT (Amber)	\$19	\$49	\$99
15" CRT, no case	—	—	\$85
Drive Analog Card	\$9.95	\$29	\$59
Drive Mechanism	—	\$25	\$59
Power Supply	\$4.95	\$24	\$29
Keyboard (No encls.)	\$19	—	\$99

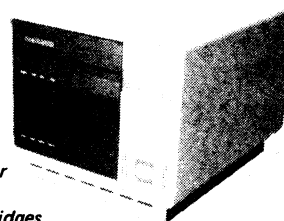
** Includes board, cable, documentation

Solo 50MBy SASI System

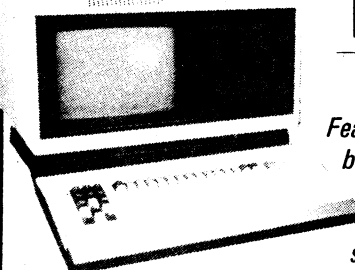
Professional Storage System

- ** Drives by Discron
- ** 40MBy fixed
- ** 10MBy cartridge
- ** Power Supply
- ** Enclosure
- ** SASI Controller by DTC
- ** Incl. two Cartridges
- ** Fully Supported Product
- ** Cartridges available from Dysan and many others.

Known reliable design. Built-in backup.



\$1495



Micral 8520

A better Z-80 system
cannot be found!

Features dual-everything floppies
by Tandon, 640K each. Z-80A,
CP/M 2.2. Detachable key-
board, green screen,
switching power supply.

ONLY..... \$599

Televideo Sale

Unpopulated, first quality boards
for making your own computer
system. PRICES REDUCED!!!

BARE BOARDS

TS800.....	5 for \$9.95	8 RS-422 S.I.O.....	\$9.95
Floppy Controller for 5 1/4"		Winchester Controller Kit:	
drives.....	3 for \$9.95	Includes WD1000-5	
TS806.....	5 for \$19.95	board and WD1010	
TS806C.....	5 for \$9.95	chip.....	\$29.95
TS816.....	3 for \$29.95		

STUFFED, SOLDERED BOARDS

TS801....	Guaranteed, complete....	\$249.....	As-is.....	\$25.00
TS806....	Guaranteed, complete....	\$595.....	As-is.....	\$25.00
8 RS-422 S.I.O.....				\$39.00
Teleporta Board.....				\$99.00

Some manuals and eeproms available from us - call or
write for a complete listing.

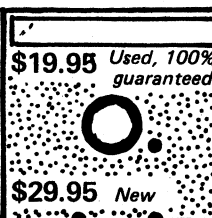
175 WATT SWITCHER Japanese version of Boschert OL153-011.
5V/15A, +, -12V/4A, 24V/4A. An extremely small and lightweight
(2.25"x10"x5.5" footprint) power source that has a LOT of punch!
Perfect for the every-slot-filled PC or PC clone, these run on 115/230
and are factory new. KEC model SCB174-01

\$79

Alignment Diskettes

"Cats-Eye" 5 1/4" Floppies

Shugart diskettes, work with 48TPI,
96TPI, 100
TPI, incl.
Apple-type
drives.
Durable
mylar,
unbeatable
price. With
instructions.



\$19.95 Used, 100%
guaranteed
\$29.95 New

DEC

M8210-11/780 Memory Bds
1/4MBy for VAX. New,
guaranteed..... \$500/ea.
Backplanes: DD11CK with
jumper cable \$295
DD11B..... \$195
Cabinets for VAX.....\$795
Printers for VAX:
LPXY 12..... \$6900
LPXY 21..... \$7900
RM05 Disk Drive, new, no
controller..... \$7500
Dual DECtape Drive w. 1/4"
tape. Used..... \$695
PDP 8M w. 611 Graphics
Display, used..... \$950

S-100 Z-80 CPU

Bare, unpopulated board: IEEE-696
S.S.M. card. Features - extended
address (24 bits), up to 8K Porm/
Ram(2 sockets, jump on reset,
2/4MHz. Board, manual: \$24.95

Monte Carlo Card

IBM Afficionados Special!
Bare, unpopulated board. 256K with
parity, serial and parallel ports, game
port & calendar time clock.
Board, manual & schematic: \$39

415-493-5930

3200 PARK BLVD. * PALO ALTO
CALIFORNIA 94306

Shipping charged on all orders. Please add
\$2 plus applicable UPS rates for shipping and
insurance.

DEALER INQUIRIES INVITED

Continued on page 60

Applying the Atari

by Jeff Brenner

This month's feature program is an on-screen alarm clock, ideal for those of you who have difficulty pulling away from your Atari to sleep, eat, work, etc. We'll also enter a joystick-tester program and a printer utility, and we'll look at two children's programs from Mindscape.

Adios Adam

At this writing, Coleco Industries Inc. officially dropped its Adam computer. It had been a tough, long year and a half for the Adam from the day

of its planned introduction in June of 1983. If not for their Cabbage Patch Kids, Coleco's story might have been a much, much sadder one. So you see, folks, Atari has lived to witness the fall of yet another competing computer product.

Atari News

A few days after Coleco's announcement, Atari displayed several of its new computers at the Las Vegas Winter Consumer Electronics Show. The new machines make up the "XE" line. One is a 64K, XL-compatible portable. The others are Atari's first 16-bit

units. We'll have more details on these models next month.

Reader Mail

I got this idea for a joystick testing program after an incident I had with a new game program. For days I tried to figure out why the game wasn't working like it was supposed to. Just when I was ready to bring the game back to the store, I found out that my joystick was not registering the up, or diagonally-up directions! Just run the program and move the joystick to each of the positions shown in the picture on the screen. If the joystick is

O.K. the program will say so. Otherwise, it will not let you go on past the non-working direction. It also checks the joystick trigger. I hope your readers find it handy.

*Ricky Freeman
Baton Rouge, Louisiana*

I'm sure they will. The program is listed under the "JOYSTICK TESTER" heading and has been slightly modified to facilitate its printing in the magazine. Thanks for writing.

I'm a novice Atari user and recently bought an Epson RX-80 printer. I'm very interested in using the printer to create graphics. A salesman told me I need a "screen dump," but since I am not familiar with this I am asking for your help.

*B.E. Grant
Newark, New Jersey*

Very simply, a screen dump

Continued on page 61

S.A.M.

Continued from page 58

be able to spell to program a word - you only need to be able to say it! The English-to-text program does a very respectable job in producing speech, but it does make mistakes. The most intelligible speech is produced using direct phonetic input, which allows placing inflection in speech and permits fine control of word pronunciation. Using phonetics is a bit tedious, and in itself uses more memory, since a word spelled phonetically almost always

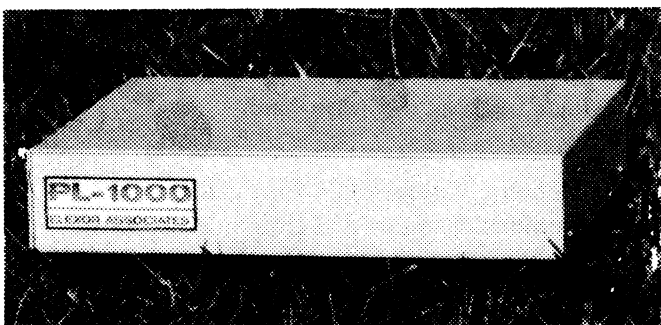
takes more characters than the straight English spelling. All of the demonstration programs and the English-to-text program can be copied onto your own DOS 2.0S disk. You cannot make a back-up copy of the actual speech synthesis program. A replacement copy can be obtained for \$5.00, though. If you aspire to sell programs utilizing S.A.M., a licensing agreement can be obtained from Don't Ask Software. The manual is well written, and will enable you to begin talking through your Atari in short

order. If, however, your application requires a simultaneous screen display and voice, then S.A.M. won't be able to do a very good job. But for easy to obtain and good sounding voice synthesis, S.A.M. is an excellent choice. The Software Automatic Mouth is available through

TRONIX
8295 S. La Cienega Blvd.
Englewood, CA 90301
(213)215-0529
\$59.95 disk only

DATA ACQUISITION & CONTROL

The most versatile and cost-effective "REAL-WORLD INTERFACE" for your personal computer. Our systems give you complete Analog and Digital I/O capabilities. Measure temperature, pressure, flow, weight, etc. Whether in the lab or in the field, Data Acquisition and Process Control are now easier than ever. Systems from \$549. Call the factory.



RS-232 interface connects to a terminal or any computer. Accepts commands from any language (BASIC, C, etc.) Standard system: 16 ch. 12 bit A/D, 2 ch. D/A, 32 bits DIGITAL I/O. Chassis can hold 2 additional boards. Expansion boards: Digital I/O, A/D, timer/counter, triac, opto-isolator, relay, etc. Direct bus connection for many computers (Epson Geneva, TRS Model 100, NEC.)

- EXPANDABLE
- TRULY PORTABLE
- BATTERY OPTION
- BUILT-IN BASIC
- NON-VOLATILE MEM
- STAND ALONE ABILITY

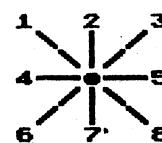
**ELEXOR
ASSOCIATES**

(201) 299-1615
P.O. Box 246,
Morris Plains, NJ 07950

JOYSTICK TESTER

```

INE 10 REM JOYSTICK TESTER
PNE 15 POKE 82,15:PRINT CHR$(125)
MJJ 20 READ A:IF A=-1 THEN PRINT :GOTO 20
NEE 30 IF A>-2 THEN PRINT CHR$(A);:GOTO 20
SNE 35 POKE 82,2:PRINT
MOJ 40 FOR I=1 TO 8:READ VALUE
CKJ 50 PRINT "MOVE JOYSTICK TO POSITION #";I
HPJ 60 IF STICK(0)<>VALUE THEN GOTO 60
DEJ 70 SOUND 0,10,12,8:FOR J=1 TO 50:NEXT J
KTJ 80 SOUND 0,0,0,0:PRINT "GOOD":NEXT I
FMJ 90 PRINT :PRINT "PRESS TRIGGER"
VAE 100 IF STRIG(0)=1 THEN GOTO 100
MTE 105 PRINT "GOOD"
YUJ 110 PRINT :PRINT "JOYSTICK IS WORKING!"
POJ 120 END
MKJ 130 DATA 49,32,32,50,32,32,51,-1
EWJ 140 DATA 32,7,32,124,32,6,-1
YIJ 150 DATA 32,32,7,124,6,-1
MWJ 160 DATA 52,18,18,20,18,18,53,-1
YKJ 170 DATA 32,32,6,124,7,-1
FAJ 180 DATA 32,6,32,124,32,7,-1
MXJ 190 DATA 54,32,32,55,32,32,56,-2
FLZ 200 DATA 10,14,6,11,7,9,13,5
  
```



Computer Jack Built

Continued from page 56

196K of ROM expandable to 320K with plug-in cartridges. The 520ST increases the RAM to 520K bytes. Language available at this time include BASIC and Logo.

Conclusions

You may read this and ask the most natural question "How much will all this cost?" As with the Commodore 128, we do not know. Prices were not announced, but rumors flew everywhere. The 65XE series was rumored to be in the "\$200 price range," the 130ST "around \$600," the hard disk \$500. None of these speculations drew more than a smile from the Atari crew. The motto of the New Atari Company

is "Power Without The Price." They have lived up to half of their motto. They have shown the power, but they have not given us the price!

The level of press cooperation has not changed at all at Atari. Their press kit was hardly complete, lacking even a phone number and a contact person within the company. Mr. James L. Copeland, VP Marketing, was listed as the contact person. We tried to contact Mr. Copeland after the show but no telephone number was given for him. We tried the general number and all we got was a recording telling us the lines were busy. Oh yes, they will publish their own magazine called Atari Explorer, which will get all the information first and will be their user contact.

Applying The Atari Continued from 60

is a routine which prints, or "dumps," the contents of the screen to the printer. The best way to draw graphics on your printer is to first create the image on the screen and then transfer the contents of the screen to the printer. Many graphics programs on the market contain a built-in screen dump that allows you to print displays created with the program. A screen dump to print displays created by your own BASIC programs is not difficult to design, and one is listed under the "GRAPHICS DUMP UTILITY" heading.

This program will print graphics created in GRAPHICS 6, 7, 8, 9, 10, 11, 14 and 15. GRAPHICS 8 works best. As is, it will work with most Epson, Gemini, or graphics-compatible printers. To use, simply GOTO 31000 after creating a display on a graphics screen. If your printer is properly connected and its power on, the graphics will be printed. The program will automatically compensate for graphics modes with or without a text window.

Higher horizontal resolution on the printer is possible by changing the MODE variable on line 31020. When MODE = 1, the resolution is 60 dots-per-inch. When

MODE = 2, the resolution is 120 dots-per-inch. On the Epson FX-80 and RX-80, and on the Gemini 10X and 15X, two additional modes (MODE = 3 and MODE = 4) may be used by adding the appropriate characters to the data in line 31080 of the subroutine. When MODE = 3, the double-speed, 120 dots-per-inch mode is activated. Quadruple density is available when MODE = 4. This gives a resolution of 240 dots-per-inch.

If you have an Epson, add ,Y,Z to the data statement in line 31080 so it reads:

31080 DATA K,L,Y,Z

If you have a Gemini, the two additional letters must be lower-case. Line 31080 will read:

31080 DATA K,L,y,z

Demo 1 and Demo 2 are sample BASIC graphics listed under their respective printer outputs. Enter Demo 1 without erasing lines 31000-31220 of the Graphics Dump Utility and run it. Your printer should display the same output. For the second demonstration, type NEW, load the Graphics Dump Utility into memory again, add Demo 2 and run it.

The Graphics Dump Utility differs from other screen dumps in that it prints horizontally on the paper, as it appears on the screen. Normally, a

graphics dump would print the image on its side. To correct this, our utility reads the screen sideways to yield an upright image printout.

Reminder

Next month's column will contain our first "Programming Tips" section. Program-

ming hints and ideas sent in by readers will be included here. If you have any programming suggestions, or short, handy programs from which others may benefit, send them in. Contributors whose ideas are printed will receive three-dimensional, laser-etched hologram stickers. Let me hear from you.

Imperfect Program Perfect

January's column contained some modifications to Program Perfect which originally appeared here in December. If you followed the article carefully, you should have had no problems in making the changes. However, I would understand if there was some confusion, as two lines of the program got squashed together in the typesetting department. Line 30260 should read as follows:

30260 IF T>650 THEN T = T-650

Program Perfect is used to prevent typing errors in programs entered from this column. It makes use of a three-letter code which precedes each line of the longer programs which appear here. If you're new to Computer Shopper (and I understand we're still gaining new readers at an amazing rate), you will find a complete listing of Program

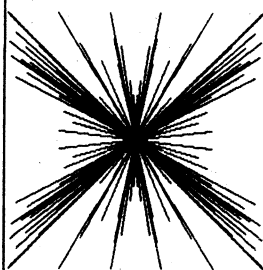
GRAPHICS DUMP UTILITY

```

10 REM GRAPHICS DUMP UTILITY
20 REM BY JEFF BRENNER
30 MODE=2: DIM A$(150), B$(320), S$(1): OPEN #1,8,0,"P:": RESTORE 31040
40 FOR I=1 TO PEEK(87)-4: READ BPL,VERT: NEXT I
50 IF BPL=0 THEN PRINT "UNSUPPORTED MODE": END
60 DATA 0,0,20,80,40,80,40,160,40,160,40,160,40,160,0,0,0,20,160,40,160
70 IF PEEK(703)<4 THEN VERT=VERT+VERT/5
80 RESTORE 31080: FOR I=1 TO MODE: READ S$: NEXT I
90 DATA K,L
100 RESTORE 31160: FOR I=0 TO 91: READ A$: POKE 1536+I,A: NEXT I
110 S=PEEK(88)+256*PEEK(89): PRINT #1;CHR$(27);CHR$(64);: BPL=BPL*8
120 PRINT #1;CHR$(27);CHR$(65);CHR$(8);: HI=INT(BPL/256): LO=BPL-HI*256
130 FOR I=1 TO INT(VERT/8+0.5): POKE 207,INT(S/256)
140 POKE 206,S-PEEK(207)*256:B$(1)=CHR$(0):B$(320)=CHR$(0):B$(2)=B$
150 A=USR(1536,ADR(B$)): PRINT #1;CHR$(27);S$:CHR$(LO);CHR$(HI);
160 PRINT #1;B$(1,BPL): S=S+BPL: NEXT I: END
170 DATA 104,104,133,205,104,133,204,160,0,162,8,177,206,157
180 DATA 92,6,24,165,206,105,40,133,206,165,207,105,0,133
190 DATA 207,202,208,235,198,207,56,165,206,233,64,133,206,165
200 DATA 207,233,0,133,207,169,8,133,203,162,8,177,204,62
210 DATA 92,6,42,145,204,202,208,245,198,203,165,203,240,16
220 DATA 24,165,204,105,1,133,204,165,205,105,0,133,205,76
230 DATA 51,6,200,192,40,208,174,96

```

Demo 1

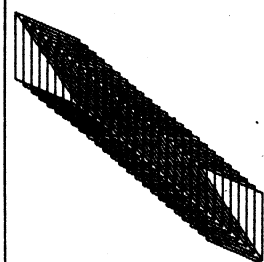


```

10 REM DEMO 1
20 GRAPHICS 24:COLOR 1:X=0:Y=191:I=X
30 TRAP 70
40 PLOT X,Y: DRAWTO 319-X,191-Y
50 PLOT X,191-Y: DRAWTO 319-X,Y
60 X=X+Y:Y=Y-X
70 IF X>319 THEN X=X-319:GOTO 70
80 IF Y>191 THEN Y=Y-191:GOTO 80
90 I=I+1: IF I<30 THEN GOTO 30
100 GOTO 31000

```

Demo 2



```

10 REM DEMO 2
20 GRAPHICS 24:COLOR 1:TRAP 90
30 FOR X=0 TO 300 STEP 10
40 Y=INT(X/2+0.5)
50 PLOT X,Y: DRAWTO X,Y+50
60 DRAWTO X+80,Y+70: DRAWTO X,Y
70 DRAWTO X+80,Y+20: DRAWTO X+80,Y+70
80 NEXT X
90 GOTO 31000

```

Continued on page 64

ABC ELECTRONICS

315 7TH AVENUE NORTH
MINNEAPOLIS, MINN. 55401
1-612-338-1118

TERMS: Add \$5.00 shipping and handling charge. Minnesota residents add 6% sales tax. Send money order or cashier's check for immediate delivery. Allow 3 weeks delivery for orders accompanied by a personal check.

ALL ITEMS: WHILE SUPPLY LASTS!!

DISK DRIVES

Shugart 800-2 8" Single Sided, Removed from equipment, Good condition, "AS IS" \$79.99
Shugart 850, Good condition, "AS IS" \$149.99
5 1/4 inch MPI 51S SSDD \$99.99
Shugart 5 1/4 1/2 height disk drive DSDD, New \$169.99

DISK DRIVE CASE

Full Height 5 1/4 Disk Drive Cabinet. Room for a small power supply. 13" L x 3 5/8" H x 6 1/4" W. New \$14.99
Dual 8" Disk Drive case with fans. 19 1/2" W x 17 1/2" D x 7 1/2" H. Good condition \$69.99
Single 8" Disk Drive Cabinet with fan. 19 1/4" L x 6 1/2" H x 11" W. Cast aluminum. Good condition \$44.99

MISC.

Texas Instrument Home Computer "Y" Cable - RS232 two female interchangeable connectors with one male conn., New \$7.99
RS232 10' Extension Cable \$7.99
Sprite Fan 115V 3 1/4 inch square, new \$14.99
Okidata Printer - Model 80A 7x9 (half space) impact dot matrix printing.

10 char. per inch 6 or 8 lines per inch. Vertical form control electronic, vertical forms unit 3 to 12 inch form length. Parallel interface serial (optional interface) Friction or fixed pin sprocket (optional) paper feed. Instr. incl., New \$175.00

POWER SUPPLIES

Motion Power Supply, Input: 115 VAC, Output: 5 @ 2.2 Amp, 24 @ 2.4/4.2 peak, new \$34.99
Standard Power Supply Input: 115/230V Output: 5V @ 3.0A, 12-15V 1.5A, 12-15V 1.5A, New \$34.99
Power One Power Supply Model CP282, Input: 110 or 220, Output: 5V @ 4A, +15V @ 4A, -15V @ 3A, Preset OVP, New \$49.99
L H Research Mighty Mite Model #MM43-E1215. Input: 1230VA 115-230VAC 47-63Hz. output: 615W, 5VDC @ 75A, 12VDC @ 10A. New \$109.99
Power One Model #CP366A. Input: 115VAC 47-63Hz. Output Regulated: +24 VDC @ 3.0A + 12VDC @ 2.0A, -5VDC @ 0.75A. Unregulated: +6.6VDC @ 0.5A. New, each \$29.99
Boschert Switching Power Supply Model #OL803549P, Input: 110 or 220 primary, Output: +24V @ 3A, +12V @ .5A, -12V @ .5A, +5V @ 3A, New \$49.99

ABC ELECTRONICS

1-612-338-1118

Applying The Atari

Continued from page 61

Perfect in next month's column. If you can't wait, you can send me a self-addressed, stamped envelope for a listing, or send a cassette or formatted disk and \$2.00 for handling and return postage and I will make a copy for you. Make

sure you specify DOS II or DOS III if you send a disk.

Tink!Tonk!

Several months ago, I reviewed "Tonk in the Land of Buddy-Bots," an excellently designed children's program from Mindscape, Inc. Well, the Mindscape people have sent me two of their newer programs from their Tink!Tonk!

software line which are equally appealing.

"Tuk Goes to Town" is intended to build spelling, vocabulary, and shape and pattern recognition skills through five games. "Tink's Adventure" is designed to teach ABC order and the computer keyboard layout through five games. Both of these programs combine an interactive story with an animated character controlled by the child. They also feature attractive, colorful graphics, and music.

The instruction manuals are easy to understand and well-illustrated, although I can't resist mentioning one small item that appeared in the "Tuk Goes to Town" manual. It gives the software copyright date as the year 1874. Either these people have been preparing this program quite some time, or, more likely, someone made a typographical error. I should point out, however, that this typo is in no way indicative of the overall quality of the manual or the game itself. If you have some four to eight year olds at home, I highly recommend that you consider these Mindscape programs.

Alarm Clock

Beep-beep-beep. It's time for our alarm clock program (yes, pun intended). Not only will it provide a constant display of the time on the screen while you program, but it can sound its alarm at any time you select.

The program is listed under the "ALARM CLOCK" heading. Enter it, save it and then run it. You are first asked to enter the current hour. That's easy enough -- type the hour and press RETURN. Next, you're asked for the current minute. Since the clock will not start immediately, enter a value one minute past the current minute.

Once the current hour and minute have been specified, you are asked to enter the alarm hour. Type the hour of the time you wish the alarm to sound. Following this, you're asked for the alarm minute. Enter the minute of the alarm time.

Now you'll get a "PRESS RETURN TO START THE CLOCK" message. When you press RETURN, the clock will appear on the top line of the screen and will start at zero seconds of the time you have entered. A flashing colon indicates that the clock is working. Since the clock lies on the first line of the display, you will not be able to type on this line -- the machine language routine contained within Alarm Clock will automatically move the cursor off this line, so you need not worry about it.

Granted, the clock is not 100% precise; it may lose about six seconds per hour. But for the time period you would be using your computer, this time loss is not very significant.

The clock will also slow down somewhat while the disk drive is being accessed, and even more so while the cassette recorder is being used, so you should limit these operations if you desire to keep the clock more accurate.

When the clock reaches the time set for the alarm time, the alarm will begin beeping through the television speaker. Out of kindness, I will tell you that you can turn the alarm off by pressing the START key. The clock itself will remain operational.

You don't need to keep the alarm clock program in BASIC's memory for the clock to function. Alarm Clock stores a machine language routine onto page six of the computer's memory (a relatively safe area of RAM) where it is executed as part of the Atari's vertical blank routine. Therefore, you can type NEW and begin your own programming projects.

One more note: Alarm Clock should only be used with a Graphics O screen as it was designed to be used while programming in this mode.

Next Month

We'll learn how the alarm clock program works, and I'll include an assembly language listing. Also, we'll start our exciting Programming Tips section. And, don't be too surprised if you encounter an April Fools' program!

Readers' questions, comments and contributions are welcome. Address all correspondence to:

Jeff Brenner's
"Applying The Atari"
PO Box F,

Titusville, FL 32781-9990

ZAPPER-ZAPPER-ZAPPER-ZAPPER-ZAPPER-ZAPPER-ZAPPER

Protect Your Modem, Computers and Telephones From Lightning and High Voltage Surges

ZAPPER

PRICE
12⁹⁵

5" PIGTAIL

• PROTECTS MODEMS
• JUST PLUG IN AND ITS READY
• SUPPRESSES TRANSIENT SPIKES

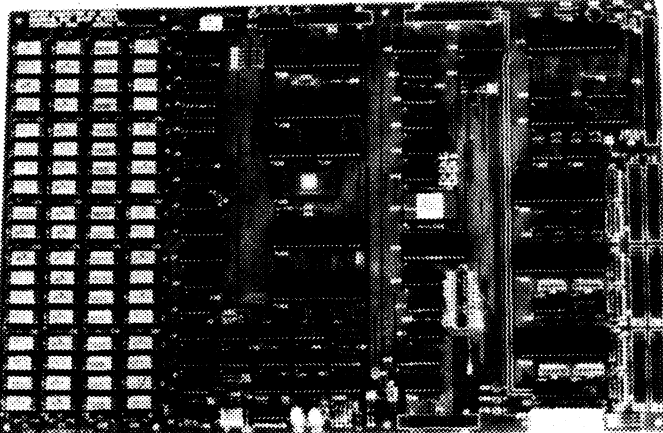
ZAPPER PROTECTS YOUR EQUIPMENT FROM THE DESTRUCTIVE EFFECT OF LIGHTNING AND HIGH VOLTAGE TRANSIENT SPIKES BY INSTANTLY SENSING AND SUPPRESSING THEM.

SEND \$12.95 PLUS \$2.50 FOR SHIPPING AND HANDLING TO:
SPACEPORT PRODUCTS
P.O. BOX 227
CAPE CANAVERAL, FL 32920
FLA. RESIDENTS ADD 5% SALES TAX

ZAPPER-ZAPPER-ZAPPER-ZAPPER-ZAPPER-ZAPPER-ZAPPER

THE BIGGEST & BEST SBC

The Mega Super Computer



The Maxi Computer System on Board

- ★ 512K of D-Ram with Parity-Configurable as 8 Banks of 64K or as a high speed Electronic Disk
- ★ Dual Density 1 or 2 sided Floppy Disk Controller (WD2797-8" or 5" simultaneously - supports 3 drives for 4 MB's of DATA
- ★ Hard Disk Interface, ST506, SASI or Priam
- ★ Six Serial Ports - with hand shaking
- ★ 48 Additional Ports on I/O expander BUS
- ★ Math Chip (9511 or 9512)
- ★ CTC & DMA
- ★ Two Parallel Ports
- ★ Z80B Runs at 4 or 5 MHZ
- ★ RUNS/CPM/MPM and Turbodos

- CP/M 2.2 System 512K, RAM Disk (430K)
- CP/M 3.0 System 512K Bank
- MP/M 2.1 System 384K auto-boot for console (16 users)
- Turbodos 1.3, 128K (see Microsystem, Aug. 84)

SPECIAL HALLOWEEN PRICES

Total price for above systems **\$1099** — includes operating system and board
Hard disk 20 megabyte package for all systems above \$1995.

All this on a multi layer card - with accurate documentation.
Bare Board - with documentation & Firmware (PAL) — **\$200**
Users Manual — **\$25**
Wave soldered assembled board without IC's — **\$375**

MEGACO.

2248 S. Park Street, Madison, WI 53713, (608) 255-7400

ALARM CLOCK

```

TBJ 10 REM ALARM CLOCK
ENJ 20 REM BY JEFF BRENNER
VJ 30 RESTORE 100:TOT=0
NEJ 40 FOR I=0 TO 192:READ N:POKE 1536+I,N:TOT=TOT+I:N:NEXT I
YJ 50 IF TOT<42303 THEN PRINT "ERROR - CHECK DATA":END
VJ 60 PRINT "CURRENT HOUR":INPUT A:GOSUB 140:POKE 207,A:IF E=1 THEN 60
VJ 70 PRINT "CURRENT MINUTE":INPUT A:GOSUB 160:POKE 206,A:IF E=1 THEN 70
LCJ 80 PRINT "ALARM HOUR":INPUT A:GOSUB 140:POKE 1726,A:IF E=1 THEN 80
GJ 90 PRINT "ALARM MINUTE":INPUT A:GOSUB 160:POKE 1727,A:IF E=1 THEN 90
EDJ 100 PRINT "PRESS RETURN TO START CLOCK":POKE 764,255
HJ 110 IF PEEK(764)=255 THEN 110
HJ 120 POKE 204,0:POKE 205,0:SOUND 0,0,0,A:USR(1536)
PJ 130 END
HJ 140 E=0:IF A<0 OR A>12 THEN A=0:E=1:RETURN
HJ 150 E=0:IF A<0 OR A>60 THEN A=0:E=1:RETURN
GJ 160 B=INT(A/10):C=A-B*10:A=B*16+C:RETURN
YJ 170 DATA 104,162,6,160,16,169,7,32,92,228,169,0,141,192,6,96,248
ENJ 180 DATA 162,0,181,204,24,105,1,149,204,201,96,208,24,169,0,149,204
GJ 190 DATA 232,224,3,208,236,165,207,24,105,1,133,207,201,19,208,4,169
FJ 200 DATA 1,133,207,224,2,144,17,165,207,205,190,6,208,10,165,206,205
YJ 210 DATA 191,6,208,3,238,192,6,216,160,18,162,1,181,206,74,74,74
EJ 220 DATA 74,9,144,145,88,200,181,206,41,15,9,144,145,88,200,200,202
DSJ 230 DATA 16,232,136,136,136,136,169,154,166,204,224,48,144,2,169,128,145
FJ 240 DATA 88,136,136,177,88,201,144,208,4,169,0,145,88,173,192,6,240
FJ 250 DATA 23,165,204,201,48,144,12,169,32,141,0,210,169,200,141,1,210
HJ 260 DATA 208,5,169,160,141,1,210,173,31,208,201,6,208,11,169,0,141
ZJ 270 DATA 0,210,141,1,210,141,192,6,165,84,208,5,169,143,141,252,2
HJ 280 DATA 76,98,228,0,0,0

```

CLASSIFIED RATES
17 CENTS PER WORD
(NON-SUBSCRIBERS 34¢ PER WORD)